

MARINE REVIEW.

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No. 18.

One of the Largest New Ore Carriers.

General plans of the steel ore carrier which is being built by the Cleveland Ship Building Co. for Captain Thomas Wilson and others of Cleveland are presented herewith. They show very clearly the long open deck and big hatches adapted to rapid handling of cargo in ships of this kind. This steamer will carry 4,000 gross tons on 14½ feet draft or 5,500 gross tons on 16 feet draft. She is in nearly all respects a duplicate of the steamer Yale, which the Cleveland Co. built a short time ago for R. R. Rhodes and others of Cleveland. The essential features of difference are that the Wilson vessel will have no gangways or package freight handling machinery and no main deck. She is 20 feet longer but 3 feet narrower than the 400-foot steamers Zenith City and Victory, recently built in Chicago and which have attracted so much attention. Her capacity will be about the same as that of the Chicago-built ships. Her scantlings will be about the same weight as those of the Chicago boats but the sheer strake and deck stringer is heavier. Dimensions of the new steamer are: Length over all, 413 feet; length of keel, 395 feet; beam, 45 feet; depth, 28 feet.

Lake Freight Matters.

As Duluth grain shippers have for ten days past been paying 6 cents on wheat to Buffalo for practically all vessels offered, ore shippers have

the wages of miners have been made by corporations like the Minnesota Co., Chapin Co. and others equally important.

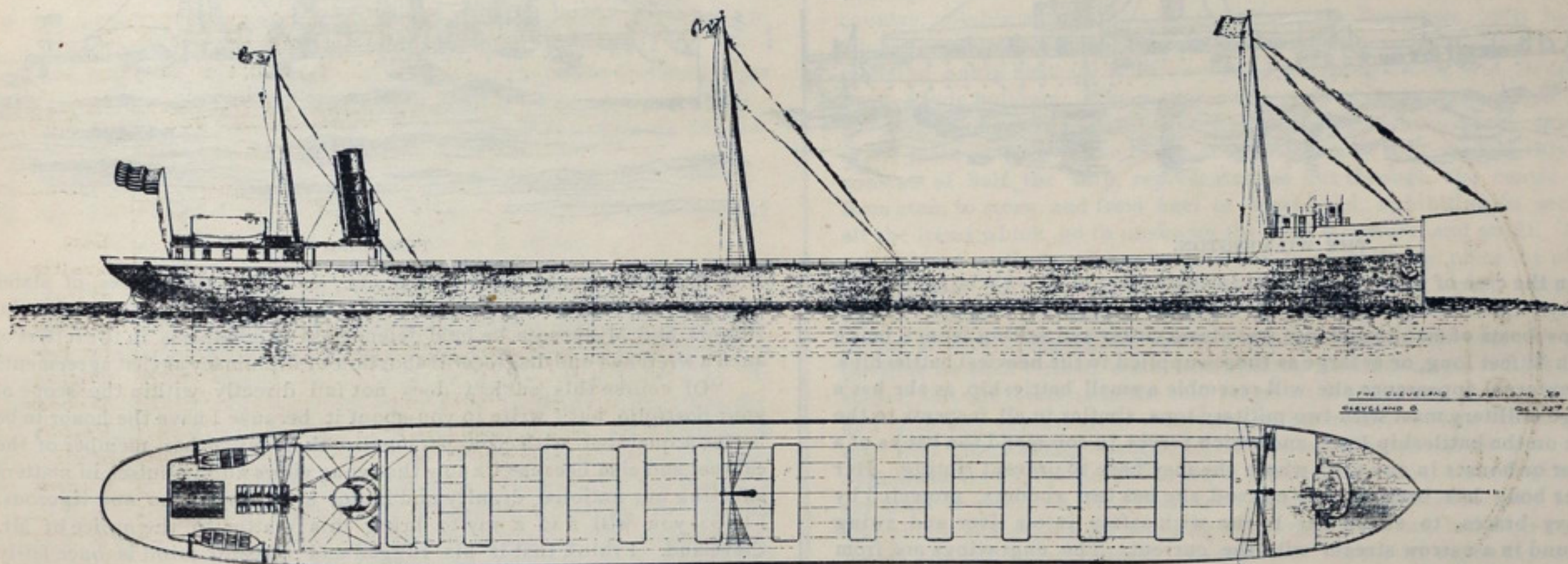
Lumber shippers who have delayed the movement of their product from the head of Lake Superior will also be compelled to pay high freights if the lumber is brought down this fall. They have been trying during the past few days to charter vessels at \$3.00 to Tonawanda and \$3.25 to Chicago, but have met with very little success. Some deals engaging vessels in special lines of trade for the balance of the season on contracts that are quite profitable are also reported. The Bradley steamer Hale and consort Quayle, two vessels of only moderate capacity, get \$5,500 net for carrying ore for the balance of the season from Escanaba to South Chicago. They were engaged only a few days ago.

Ship Yard Matters.

With one or two exceptions the ship yard's of the the lakes now have about all the work they can care for until well into the opening of navigation next season. This does not mean, of course, that more work will not be undertaken within the next few months, some of it not to be completed until late next season. It is quite certain also that the yards that are not filled up could readily secure new work, but the matter of prices seems to be an obstacle in such cases, as negotiations for steel ships are under way all the time. The manager of one of the companies,

STEAMER No 23

LENGTH OVERALL 413 FT
LENGTH B/TN PERP. 395 FT
BREADTH MOLDED 45 FT
DEPTH 28 FT
SCALE 1/16" = 1 FT



NEW WILSON LINE STEAMER—413 FEET OVER ALL.

been almost forced out of the market, or rather have been left to move small quantities of ore not covered by contract in vessels that are not altogether fitted to carry grain. The grain rate is better than two-dollar ore from the head of the lakes, that figure having been paid by one vessel owner to another on a few jags of ore that were undelivered parts of contracts. The ore shippers have thus far refused to pay such a rate, however, and are holding back on offers of \$1.75 and \$1.80. At Escanaba, also, they are refusing to meet the demand of vessel owners for \$1.25, but have secured very little tonnage at \$1.15, the rate which they offer.

There is now no probability of a decided slump in the freight market at any time during the balance of the season. Even in event of the grain movement dropping off it is quite probable that ore shippers would try to regain lost ground in shipments and this action would uphold the market to highly profitable rates. The vessel owner has all the best of the situation, and although water extremely low and continued heavy weather have reduced the size of cargoes and number of trips, these conditions have been important factors in upholding rates.

The present high range of freights prevents the consideration of matters pertaining to next year's business in ore, and there is no further talk on that score just now. The various interests are too far apart in their ideas of prices, and of course the lake freight rate is most difficult of settlement. The big mining companies are making preparations for activity during the winter, however, and announcements of advances in

whose facilities will be engaged until June next, claims that he knows of at least four parties of owners with whom contracts might readily be closed on a little figuring.

Mr. John Craig of Toledo, who was in Cleveland a few days ago, says he is figuring with two or three owners for a steel steamer of extreme Welland canal size and will probably put down the keel for a ship of this kind shortly, even though a contract may not result from the present negotiations. In putting down a ship on his own account, Mr. Craig would probably prefer making the keel length 350 feet or more, but he is conservative in money matters and is not disposed to undertake heavy expense without a purchaser for the vessel.

A wooden steamer having gangways and of about 240 feet keel, suited to Portage lake canal trade, will be built by the Jenks Ship Building Co. of Port Huron on ship yard account. Engines will be of the compound type.

Manager T. F. Newman of the Cleveland & Buffalo line seldom misses an opportunity to advertise his ships. He has again started the newspapers talking of a name for the new side-wheeler being built by the Detroit Dry Dock Co. City of Buffalo is the name now said to meet with most favor among directors of the company.

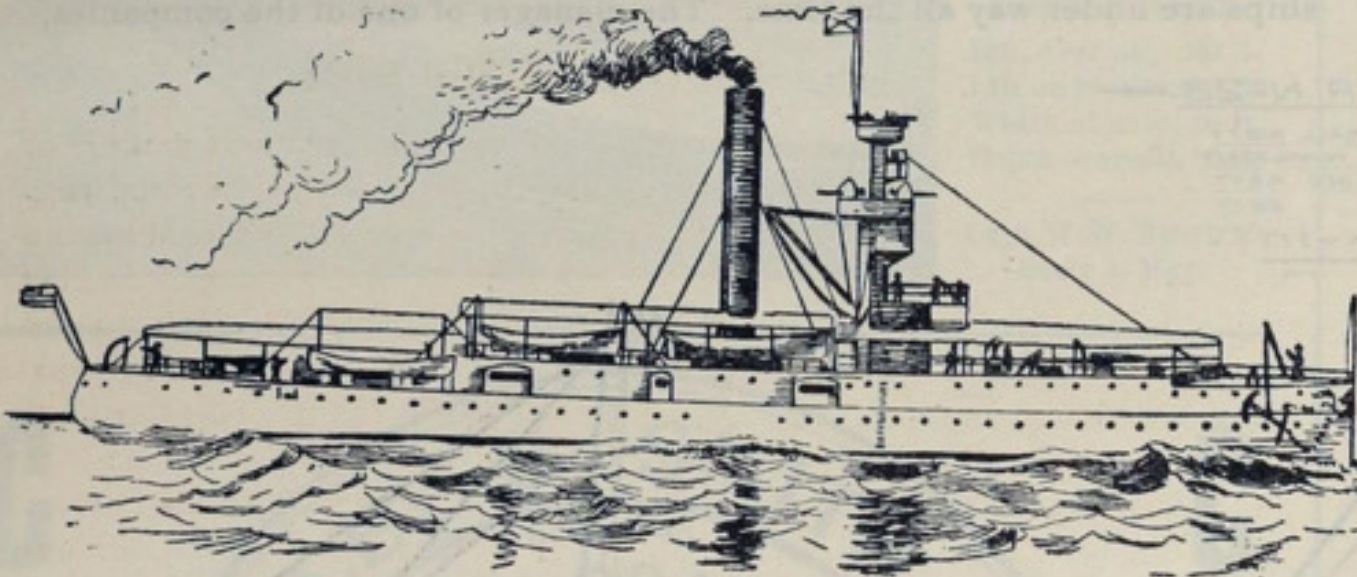
MASTERS OF LAKE VESSELS CAN NOT WELL AFFORD TO BE WITHOUT THE NEW CHARTS. EXAMINE THEM AT THE OFFICE OF THE REVIEW.

The New Gunboats.

Two of the three light-draft gunboats that are being built by the Newport News Ship Building and Dry Dock Co. were launched a few days ago. They will be known as the Nashville and the Wilmington. The third vessel, which will be known as the Helena, and which is not as yet quite ready for launching, is a duplicate of the Wilmington. Secretary Herbert and a large party of naval officers attended the launch, which was remarkable on account of the same set of ways serving for both ships, which were placed tandem fashion. The slip in which the two vessels were built, being long enough to accommodate a 500-foot ship, was long enough for the Nashville, 233 feet 5½ inches long, and the Wilmington, 251 feet 10 inches.

The light draft of the Nashville will enable her to enter many ports inaccessible to most war vessels. At her normal draft of 11 feet her displacement is 1,371 tons. She is schooner rigged and carries 390 tons of coal, a large amount in proportion to her size. She has two types of boilers, one for economical steaming, the other for speed, her maximum being 14 to 15 knots. She is designed for long cruises, and the excessive cylinder condensation resulting from running the engines at low powers is avoided by disconnecting the low pressure cylinder of her quadruple expansion engines. The condensing surface is 2,456 square feet. When cruising at moderate speeds, the low pressure cylinders being disconnected, steam can be supplied to the two triple expansion engines so formed by either of the batteries of boilers. There are twin screws, and the condensers and all important parts of the machinery are in duplicate.

The Wilmington is designed for river service. Her draft is 9 feet and her displacement 1,391 tons. She is designed to meet the requirements of roomy and well ventilated quarters, so as to provide for refugees,



THE WILMINGTON.

as in the case of missionaries, and to enable her to carry a large landing party. She has berthing capacity for many besides her crew, and carries ships' boats of an unusual size, her steam cutter and sailing launch being each 33 feet long, or as large as those supplied to the heaviest battleships. In external appearance she will resemble a small battleship, as she has a large millitary mast with two military tops, similar in all respects to the one on the battleship Iowa, and which serves to command the banks of a river or houses in any town where she may have to prevent rioting. Her after body has been largely cut and she has two rudders, protected by heavy braces, to enable her to run with safety into a river and swing around in a narrow stream with the current. The engravings are from the New York Times.

England's Revenue From the Suez Canal.

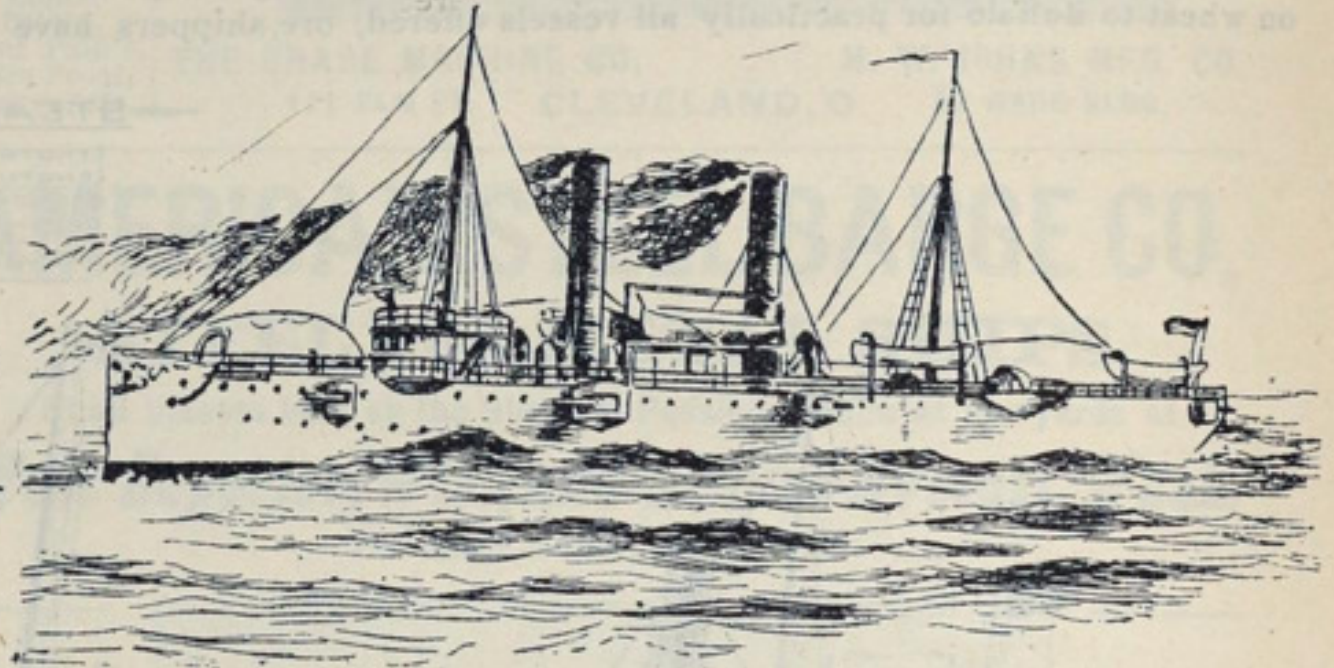
A consular report dealing with the business of the Suez canal during 1894 has the following regarding the financial standing of the canal company: "In 1894 the gross receipts of the company were \$15,390,230.60, which compares with \$14,764,906.80 in 1893, and if the revenue from the tramway from Port Said to Ismalia and the lands and water company are eliminated, it will be found that the actual receipts from the vessels that used the canal were \$650,800 higher than in the previous year. Expenses were \$65,958.60 smaller than in 1893. Taking the whole of the charges of every kind, including the interest and sinking fund on the bonds, the 5 per cent. interest which is paid on the whole of the capital, and a sum of \$90,000 for renewals and improvements, we get a total of \$7,165,834.20, which, deducted from the gross revenue of \$15,390,230.60, leaves \$8,224,396.40. Out of this sum the council recommended the placing of \$150,931.60 to the reserve, thus bringing it up to \$1,150,931.60. Thus there remained for distribution among the shareholders \$8,073,464.60, and each share, in addition to the 5 per cent., which is first paid, will receive for 1894 a dividend of \$14.20. The gross yield on Suez canal shares for last year consequently comes to \$19.20, or 18 per cent., or, after deducting the tax, to \$18 net. An important period was reached in July, 1894, when the last of the fifty coupons that had been detached from the Khedive's shares in 1869 was paid. The security known as "delegations" has, therefore, been extinguished, and the whole of the shares held by the British gov-

ernment are now in receipt of dividends. Since the holding of England amounts to 176,400 shares, the annual revenue therefrom, assuming the dividends to be maintained, will be upwards of \$3,150,000."

Declare the Independence of the Lakes.

Although a modification of the agreement with Great Britain regarding the construction or maintenance of war vessels on the lakes would bring lake ship builders into competition with the Cramps and other builders of war vessels on the coast, Mr. Charles H. Cramp, the head of the big Philadelphia concern, does not seem to fear such competition. He shows a broad spirit in a letter to Postmaster General Wilson in which he denounces the agreement and says it is an outrage upon our national manhood and a disgrace to our flag.

"The Detroit company is as well able to build these boats" says Mr. Cramp "as any concern on our soil. Why should they be deprived of opportunity to pursue their proper and legitimate business by a clause in an obsolete treaty, in which, like all our agreements with England, we get the mess of pottage, while she gets the birthright? I have been informed by officers of the navy that the English have several steamers on the lakes provided with gun circles, which are covered with a false deck, and that they have in store at Toronto four, seven, and six-inch rapid fire guns, ready to mount on them at a moment's notice. This fact violates the treaty in effect, if not in letter. In my opinion, and I think I speak the prevailing sentiment of the American people, the time has come for a declaration of independence on the lakes. The British population on the lake coasts and tributary waters is less than four millions. Ours is about thirty-five millions. Why should cities like Chicago, Milwaukee, Duluth, West Superior, Saginaw, Detroit, Toledo, Cleveland,



THE NASHVILLE.

Erie, Buffalo, Oswego, Ogdensburg, etc., and the lake shores of states like New York, Pennsylvania, Ohio, Indiana, Michigan, Wisconsin, Illinois, and Minnesota be held defenseless and helpless in the fetters of such a wretched and disgraceful abortion of diplomacy as that agreement?

"Of course this subject does not fall directly within the scope of your portfolio, but I write to you about it because I have the honor to be better acquainted with you personally than any other member of the cabinet, and also because I know that your views and impulses in matters affecting our national dignity and honor are always keen and vigorous. I hope you will find a way to bring this matter to the notice of Mr. Cleveland. I think that if his rugged and forceful mind is once fairly brought to bear on this situation he will be disposed to act in the American fashion.

"For my part I think the whole agreement, fishery clause and all, ought to be torn up and consigned to the waste basket, but I hardly expect anything as good as that. I do, however, insist that my ship building brethren of Detroit shall have an even chance with the rest of us in the pursuit of their honest and legitimate business, and I declare that England has no more right to make laws for them than she has to make laws for me or Mr. Scott or any other American ship builder. There is no good reason why England should have any more control over the fresh waters of the United States than over the salt waters. Tear up the infernal treaty. Let the Detroit people have the advantage of their lowest and best bid. At all events let us declare the independence of the great lakes."

Plans for a steel steam yacht, which Geo. L. Watson, the famous designer is preparing for Anthony Drexel of Philadelphia, call for a vessel that will be among the largest pleasure craft afloat. The vessel will have twin screws, will be 290 feet long and will cost \$500,000. The crew will number about eighty. Upon completion of the vessel, about June next, Mr. Drexel will start on a cruise around the world.

CAPTAINS AND MATES ARE INVITED TO CALL AT THE OFFICE OF THE MARINE REVIEW AND LOOK OVER THE CHARTS AND SAILING DIRECTIONS OF LAKES SUPERIOR, MICHIGAN, HURON, ERIE AND ONTARIO, PUBLISHED BY THE HYDROGRAPHIC OFFICE.

Society of Naval Architects and Marine Engineers.

W. L. Capps of Washington, D. C., secretary of the Society of Naval Architects and Marine Engineers, announces that the third general meeting of the society will take place in New York city, at 10 a. m., Thursday, Nov. 7. Through the courtesy of the president and managers of the American Society of Mechanical Engineers, the meeting will be held in the auditorium of No. 12 West Thirty-first street, the session continuing through Thursday and Friday, Nov. 7 and 8. There will be a banquet at the Hotel Brunswick at 7 p. m. on Friday, Nov. 8, to which members and their guests are invited. In order that suitable arrangements may be made, the executive committee requests that members will notify the secretary, as early as practicable, of their intentions as to the banquet, and also as to the probability of their attending the meetings of the society. Members intending to propose candidates for membership are requested to notify the secretary in order that the necessary blank forms of application may be forwarded and properly filled out. A list of the papers and writers is herewith submitted:

THURSDAY, NOV. 7:

1. American Maritime Development, by Capt. Henry C. Taylor, U. S. N., president Naval War College.
2. Performance of the Twin-Screw Steamer City of Lowell, by Professor Jas. E. Denton, Stevens Institute of Technology.
3. Rudder Experiments—U. S. S. Monterey, by Elliot Snow, assistant naval constructor, U. S. Navy.
4. Aluminum,—its alloys and their use in ship construction, by J. C. McGuire, Esq., C. E.
5. Methods and Forms for Certain Ship Calculations, by D. W. Taylor, naval constructor, U. S. Navy.
6. The Number of Longitudinal Intervals in Ship Computation, as effecting the Accuracy of Integration for displacement, and Note on the Relation between Reduced and True Wetted Surface, by Professor W. F. Durand, Cornell University.

FRIDAY, NOV. 8:

7. Recent Designs of Vessels for the U. S. Navy, by Philip Hichborn, chief constructor, U. S. Navy.
8. Tactical Consideration Involved in War Ship Design, by Albert P. Niblack, lieutenant, U. S. Navy.
9. The Centerboard,—its influence on design, its value and its proper use, by Wm. P. Stephens, Esq.
10. Engineering Research in the Navy, by Professor Wm. S. Aldrich, University of West Virginia.
11. The Ventilation of Ships, by F. B. Dowst, Esq., M. E.
12. An Experimental Test of the Armored Side of U. S. S. Iowa, by Albert W. Stahl, naval constructor, U. S. Navy.

Commander Ludlow's Difficulties.

Now it is Commander Ludlow, naval officer and brother of Col. Ludlow of the army engineer corps, who is in trouble with powers at Washington. Commander Nicoll Ludlow will be remembered as the light-house inspector who was for some time in charge of the ninth district, with headquarters at Chicago. President Cleveland has disapproved the findings of the examining board which recommended the commander for promotion. This action was based upon the action of the officer in question in making contradictory reports upon the fitness of Commander Charles S. Sperry for promotion. The president in his endorsement made some very severe comments, stating that the secretary and himself depended wholly upon the statements made by officers concerning officers junior to them and who had seen service under their command, and unless they made just statements neither he nor Mr. Herbert would know just what action was proper in examination cases. It appears that some ten years ago Commander Ludlow made a very flattering report upon Commander (then Lieutenant) Sperry's professional qualifications, and that officer was promoted to the grade of lieutenant commander and continued to serve with Commander Ludlow as executive of the old Quinnebaug. When Commander Sperry came up for promotion to his present grade Commander Ludlow, in reply to the usual interrogatory concerning Commander Sperry's fitness for promotion, stated that he did not consider him qualified. The discrepancy in his statements was brought to the attention of the president by Commander Sperry's friends and the president gave that officer his promotion. Commander Ludlow, it is expected, will either ask for a hearing by the secretary or for a court of inquiry, and if he fails to obtain satisfaction in this way he will probably appeal to congress. In case he should not be considered eligible for promotion Commander Francis A. Cook will be nominated for the vacancy now existing in the grade of captain. Should the senate decline to nominate any officer other than Commander Ludlow a block will occur which will prevent promotion until the cause is removed.

Low rates are offered to points in Michigan and Wisconsin account hunters' excursions. Ask agents of the Nickel Plate road for detailed information.

424-14

New Duties for Ship Brokers.

Vessel agents in Buffalo have repeatedly been heard to complain of the extra amount of detail to which they are forced to give attention in chartering vessels at that port, as against other shipping and receiving points on the lakes. It would seem, however, that new duties are being found for them, as indicated by the following letter from a New York firm, for whom a vessel was secured by one of the Buffalo brokers to carry a cargo of salt to Chicago:

"We have just been advised by the Chicago customer to whom we shipped a cargo of salt in the schooner which you chartered for us, that the salt arrived in bad condition. Ten tons of the cargo was so badly damaged that it was of no use whatever. The Chicago people claim that the boat was previously loaded with iron ore and had not been properly cleaned out. It seems to me that we are entitled to payment for the damaged salt, as the damage was due to carelessness on the part of the captain of the vessel. For your information I will quote the closing sentence of a letter from the Chicago customer: 'I would also add that the vessel agents be more careful in getting responsible captains and crews when they are chartering boats for us. This crew was drunk from the time they landed until we got through with them, and the boat was dirty when loaded.'"

The Buffalo agent suggests that he was of the opinion that firms in his line having all the business of a vessel to look after had quite enough responsibility, as compared with that of their brethren in other quarters. He adds, however, that if in addition they are expected to attend to the sweeping of the holds of vessels before they take in cargoes, and finally to keep crews sober in Chicago, it will be necessary in future to increase the fees they have been accustomed to charging.

Wonderful Model of a Big Ship.

Kelso & Co. of Glasgow, Scotland, is a firm well known as makers of steamship models. This company's productions in highly finished ship models have been admired for years past at all expositions where shipping was represented. They have made some models of ships built in this country, notably one of the Lehigh Valley liner Tuscarora, built by the Globe Iron Works Co., Cleveland. Recently they completed a sectional model of a ship built for the New Zealand Shipping Co. by Wm. Denny & Bros., Clyde builders. The model is to a scale of three-eighths of an inch per foot, or one thirty-secondth of the actual size of the original. Instead of the plain exterior of the hull, usually shown by ship models, this one consists of half the ship, represented as cut through the centre line from stem to stern, and from keel to mast-head, exhibiting in section all the items which go to make up the hull structure and outfit. It is constructed entirely of brass, and has been built up, piece by piece, exactly as in the case of the full-sized ship, the work having occupied twelve months. The number of separate pieces going towards the completed structure aggregates many thousands, and while—as was only possible on such a small scale—the binding medium employed has been solder, and not rivets as in the real vessel, each and every rivet is clearly and faithfully represented. Not only is the interior of the vessel rendered with painstaking exactitude, but the machinery, boilers, and deck appliances are all represented in place. Doors in the water-tight bulkheads are made to open and close from deck by means of gear, as actually fitted, and pumps and piping for draining the several hold and ballast compartments are clearly reproduced. That side of the model which represents the hull exterior shows faithfully the strakes and butts of shell plating, and the hull itself is shown resting on the cradle and ways ready for launching. The model is intended for educational purposes on board a training ship, which is operated by the Thames Nautical Training College.

Since the steamer Iroquois grounded near Ashtabula, a short time ago, on account of mistaking a lighted gas well for the harbor light, half a dozen vessel captains have made the same mistake, and did not discover their errors until they had wasted a great deal of time and steam blowing for tugs. But this mistake is only a mild one compared with that of a steamboat captain who went up on the beach at the rolling mills, just east of the Cleveland piers one morning last week, and who filed a protest on coming into port, admitting that he had been three times aground in five days while coming from the Detroit river to Cleveland. He had been lightering and throwing overboard his iron ore cargo until it would seem that he had little of it left upon reaching the ship's destination.

Wm. H. Webb, veteran ship builder and philanthropist of New York, has planned his tomb. It is in a stately sepulchral monument which contains ten separate tombs. The entrance is through massive bronze doors. A series of beautiful bronzes show the different stages of the shipbuilder's art, and bronze models of the warships launched at the famous Webb ship yards on the East river, New York, are also contained in the structure.

A Few Sermons on Transportation.

Sayings at Cleveland Meeting of International Deep Waterways Association.

Arthur J. Moxham, president Johnson Steel Co., Lorain, O.: "In the next generation the great lakes district will control the iron and steel trade of the world. In the proper distribution of the manufactured product, therefore, the question of deep waterways is all-important. More than all things else would a deep channel from the great lakes contribute to putting America in its proper place as the first steel producer of the world."

James J. Hill, president of the Great Northern Railway: "The matter of transportation is the one of most vital import to all the people next to the cultivation of the soil. * * * There is no question but that the cheapest transportation which can be furnished in any way is by a good steamer and deep water in which to run her."

Hon. Henry W. Seymour, Sault Ste. Marie, Mich.: "The great west, groaning under the severe competition of the world, can not be compelled much longer to break bulk at Buffalo and there unload her vast product into canal boats that are like peanut shells and pay elevator pool and other charges that bear too heavily upon her producers."

Gen Orlando M. Poe, corps of engineers, U. S. A.: "For thirty-five years I have watched the increase of the great lakes commerce, but neither I nor any one else has been able to expand in ideas at the same rate. The wildest expectations of one year seem absurdly tame by the side of the actual facts of the next."

Prof. Emory R. Johnson, University of Pennsylvania: "The waterway creates traffic for the railroads as well as for itself, makes raw material cheaper, increases the number that are available for use and thus adds to the products of agriculture and manufacture seeking transportation."

O. A. Howland, M. P. P., Toronto, Ont.: "Any diversion of the transportation and exchange of products of this continent from the natural route and rational order must be attended with a commercial loss that will lay added burdens upon the shoulders of the laboring people on both sides of the boundary."

Capt. Joseph Sellwood, vice-president Minnesota Iron Co., Duluth, Minn.: "Every increase in the depth of our great lake channels enlarges the mineral output, cheapens transportation, lowers prices and benefits the whole people."

E. V. Smalley, St. Paul, Minn.: "If ore were still coming down from Lake Superior in the little schooners of former days there would be no city of 350,000 inhabitants [Cleveland] at the mouth of the Cuyahoga river."

James Fisher, M. P. P., Winnipeg, Man.: "The greatest growth and development of the future will be in the region of the great lakes, which makes imperative the duty of providing for its commerce."

Hon. W. W. Bates, New York: "A sea-girt country like our own, neglecting navigation, need not expect repute for statesmanship. A shipless nation has but a faint hold on freedom and prosperity."

Denison B. Smith, Toledo chamber of commerce: "With an outlet from the great lakes our ships could roam the world-wide seas and successfully compete in a winter campaign with all other flags."

Lyman E. Cooley, chief engineer Chicago drainage canal: "The west must reach the sea without paying tribute at any toll-gate."

Capt. Alex. McDougall, inventor and builder of the whaleback: "These lakes need not one or two, but three or four outlets."

T. G. Shaughnessy, general manager Canadian Pacific Railway: "Whatever benefits the whole people will benefit the railways."

Lewis M. Haupt, C. E., Philadelphia: "The most prosperous railroads of the country are those which parallel the cheapest water routes."

Frank A. Flower, Superior, Wis.: "Transportation can never be too cheap."

New Grosse Point Channel.

A large number of vessels have already passed through the new Grosse point channel, and it will probably come into general use if the government officials will permit of such use being made of it in advance of its completion. It has been marked by nine red flag buoys on the easterly side, and the intention is to drive stakes, in a day or two, in place of these buoys and put hand lanterns on them at night. There is about 18 feet of water in this new passage, and the danger now is that some masters will think they can load considerable more cargo than heretofore, and thus fetch up somewhere around Ballard's reef, blocking the channel in that vicinity.

Letters addressed to Howard Davis, John A. Ferguson, John E. Hess, Burt Hinkley, Mr. Minick, Capt. Waltre and Eugene Wood, are held in the marine post office, Detroit.

LAKE MICHIGAN ON ONE SHEET, THE FOURTH OF THE HYDROGRAPHIC OFFICE SERIES OF CHARTS, IS NOW IN PRINT AND MAY BE HAD FROM THE MARINE REVIEW, 516 PERRY-PAYNE BUILDING. PRICE 75 CENTS.

Around the Lakes.

Tonnage of the car ferry steamer Chenango No. 2, just launched at Toledo, is 1,938.12 tons gross and 1,317.92 net. Her official number is 116,695.

Capt. Geo. A. Zinn, U. S. A., the new engineer in charge of river and harbor works on the west shore of Lake Michigan, has taken up the duties recently assigned to him.

The body of Capt Wm. Connor of the schooner Southwest, who was drowned at Marquette Oct. 1, was found a few days ago. The remains were brought to Cleveland for burial.

Ore shipments from Ashland on Oct. 20 aggregated 2,206,952 gross tons, of which 1,157,406 tons had been moved over the Chicago & Northwestern railway and 1,019,546 tons over the Wisconsin Central.

The 1895 list of merchant vessels of the United States (Blue Book) is about ready for distribution. It is published by the bureau of navigation, treasury department. Copies may be had through congressmen or senators.

John P. Gordon, son of John Gordon of Northern steamship fame, has resigned his position with the Union Transit Co. at Duluth and will be succeeded Nov. 1 by Lansing R. Robinson, who is now agent for the same company at St. Paul.

In Toronto, a few days ago, an attempt to sell the Canadian steamer City of Windsor at auction, under order of court, was abandoned, as the best offer made for the vessel was only \$1,800. Claims aggregating about \$5,000 are held against the steamer.

Capt. Thomas White, seventy-six years of age, died at Sandusky a few days ago. Forty years ago he sailed the schooner William Pierson from Toledo to Liverpool, England, and return. In later years he commanded the Gen. Franz Sigel and other lake vessels.

About Nov. 15 Light-House Inspector J. H. Dayton of the ninth district will begin substituting spar buoys for the iron buoys on Lake Michigan and Green bay. The spar buoys will be of full size and colored in the same manner as the iron buoys they replace.

On account of several vessels stranding lately on the middle ground at Port Huron, Commander Mead, light-house inspector, has been asked to move the stake at the head of the middle ground some distance up the river, just above the point where the Lyon and Quayle were aground. He will probably comply with the request.

Reports associating F. P. Gordon with Johnston & Higgins, the New York insurance brokers who have lately placed most of the big steel hull risks with foreign underwriters, are correct, but plans for his work on the lakes are not yet settled. It is thought that his brother, J. P. Gordon, who has resigned his position with the Union Transit Co. at Duluth, will be associated with A. B. Wolvin.

Handsome Photographs of Lake Steamers.

For some time the REVIEW has been planning to secure photographs of lake vessels under way, giving an artistic marine scene as well as a picture of the vessel. Arrangements have been completed and the first consignment has been received. They are 8 by 10 inches on tea colored mounts and will be sent to any address. We have a number in stock, and as more are being taken every few days we can furnish prints of almost any of the modern freight steamers at \$1 each. The following are on hand:

J. J. McWilliams,	J. N. Glidden,	Cherokee,	D. Leuty,
Yukon,	Wawatam,	Majestic,	F. L. Vance,
Colgate Hoyt,	Briton,	Chas. Hebard,	Selwyn Eddy,
John Harper,	Pillsbury,	Saginaw Valley,	Forest City,
Gladstone,	Maritana,	S. S. Curry,	Wallula,
John V. Moran,	Malta,	H. J. Johnson,	Jim Sheriffs,
John Mitchell,	Quito,	Choctaw,	Zenith City,
Corsica,	City of Collinwood,	Victory,	Merida,
Annie M. Ash,	Pascal,	P. Pratt,	

Send \$1 to the MARINE REVIEW, 516 Perry-Payne Bldg., Cleveland, O.

"Examinations of Steam Engineers," by W. H. Wakeman, is a 300-page book, which in addition to being a practical guide to examinations, contains a great deal of information of daily practice for engineers, firemen, boiler makers and machinists. The author is a practical man and a member of the National Association Stationary Engineers. There are 300 of the questions. The price of the book is \$2 and it can be obtained from the MARINE REVIEW, Cleveland.

Six days, seventeen hours and fifty-one minutes is the time of the new American line steamship St. Paul, from Southampton to New York on her maiden voyage. One day's run showed an average speed of nearly 21½ knots.

Ask agents of the Nickel Plate road about hunters' rates to Michigan and Wisconsin. Tickets on sale until Nov. 15.

Capt. George Stone.

Another veteran among masters and owners of lake vessels, Capt. George Stone of Cleveland, celebrates today (Thursday), with Mrs. Stone, the fiftieth anniversary of his wedding. A quiet surprise, arranged by a few relatives and friends, is the extent of the celebration, which will be in keeping with the retiring disposition of the captain and Mrs. Stone.



Capt. Stone has been connected with the management of vessels of the Bradley fleet for nearly forty years. He was born in Normandale, Can., March 17, 1823, and sailed before the mast as early as 1844. Previous to 1857, when he obtained an interest in vessels with the late Alva Bradley, his home was in Vermillion. While engaged in active service on the lakes, Capt. Stone commanded some of the best wooden vessels afloat. He retired in 1880 but still holds large interests in vessels of the Bradley fleet, and a few outside of that line. He is also one of the trustees of the Bradley estate.

List of Needed Aids to Navigation of the Great Lakes.

The following list of aids to navigation, just received from Mr. C. H. Keep of Buffalo, was prepared by the committee on aids to navigation of the Lake Carriers' Association, and submitted to the secretary of the treasury and the light-house board, for consideration by them:

NEW LIGHT-HOUSES AND FOG SIGNALS.

1. On Middle island, Lake Huron—Arguments in favor of the establishment of this light have already been submitted and are on file in the office of the board.
2. At Crisp's point, west of Whitefish point, Lake Superior—A pamphlet recently issued by the association and submitted to the board covers all matters pertaining to this light.
3. Light and fog-signal on St. Martin's reef, Lake Huron—This dangerous reef lies directly in the course of vessels passing between Lake Michigan and Lake Superior, between Detour entrance at the mouth of St. Mary's river and the eastern end of the Straits of Mackinaw. The traffic between Lake Superior and Lake Michigan was of small importance until within the past few years. It is now a very important route. The great lumber receipts at Chicago, which formerly came almost exclusively from Lake Michigan ports, are now divided between Lake Michigan and Lake Superior. This year nearly 1,500,000 tons of ore have been received at South Chicago already, and a very large part of this has come from Lake Superior. The steamers of the Lake Michigan & Lake Superior Transportation Co., plying between Chicago and Duluth, carry a large number of passengers during the summer months, and pass close by St. Martin's reef. This reef was the scene of the accident to the steamer Garden City many years ago, which was accompanied by a deplorable loss of life.
4. On Rock of Ages on Isle Royale, Lake Superior—A light is needed on this point to enable steamers to pass safely through the passage between Isle Royale and the north coast of Lake Superior. In the fall of the year when northwesterly gales are common on Lake Superior the route under the lee of the north shore would be very extensively followed and vessels would escape much danger thereby if this light were established.

CHANGES IN EXISTING AIDS TO NAVIGATION.

The light at the end of the extended breakwater at Marquette is inaccessible in time of severe storms, and the fog signal at Marquette is located on the shore a long distance from the light. We recommend that a crib be constructed just inside the breakwater, and that the fog signal be moved to that point and a keeper's dwelling established there, which will enable the light to be lighted at all times. Many vessels have narrowly escaped disaster at this point and there will surely be some severe accident, very likely accompanied by loss of life, unless these changes are made.

Second—It is recommended that the light ship now stationed at the foot of Lake Huron be moved from that point and stationed at the turning point, head of Mud lake, St. Mary's river. This is one of the three light-ships built under authority of congress and which can be stationed at such points on the lakes as the light-house board may deem best.

LIGHTED BUOYS.

We strongly urge upon the board the importance of obtaining from congress a sufficient appropriation for general buoyage to enable the board to furnish the lakes with a considerable number of gas buoys, or the obtaining of a specific appropriation for the purchase of a number of gas buoys, for the lake service. Needing no light-keepers and costing but little in the first place, we are of the opinion these gas buoys can be made to take the place of lights at many points on the lakes, and we ask the light-house board to recommend their purchase to congress in the strongest possible terms. This association has been informed by the light-house board that the board has already determined to place gas

buoys near Gravelly island shoal, Poverty Passage, Green Bay, and at Lansing shoal north of Squaw island, Lake Michigan.

Other points where we need gas buoys imperatively are as follows: First, on Graham shoal, Straits of Mackinaw; second, near Grosse point, foot of Lake St. Clair, on easterly side of channel, half way between light-ship and tripod; third, on southerly point of Fish island (awash), commonly called Fisherman's shoal, about five miles S. E. by E. $\frac{1}{2}$ E. from Rock island light; fourth, three gas buoys in St. Mary's river above canal at the points shown on the accompanying chart, which covers foul water at turning point just before working down to canal; fifth, two gas buoys at the foot of Lake Huron to take the place of the light-ship now at that point, and to mark the axis of the new channel now nearly completed.

NORTH MANITOU LIGHT.

We strongly urge upon the board the very great necessity of the early completion of this light. Appropriation was made for it last winter and we earnestly hope that the light will be ready for operation at the opening of navigation next season. This association has been in receipt of many inquiries from masters and owners of vessels as to when this light will be available. We urgently need a lighted buoy off the S. E. point of the island until the pier light is in operation.

All the foregoing recommendations have received careful consideration from the committee on aids to navigation of the Lake Carriers' Association. They have been compiled as the result of inquiries systematically obtained from owners and masters of vessels.

Very respectfully submitted,

LAKE CARRIERS' ASSOCIATION, by

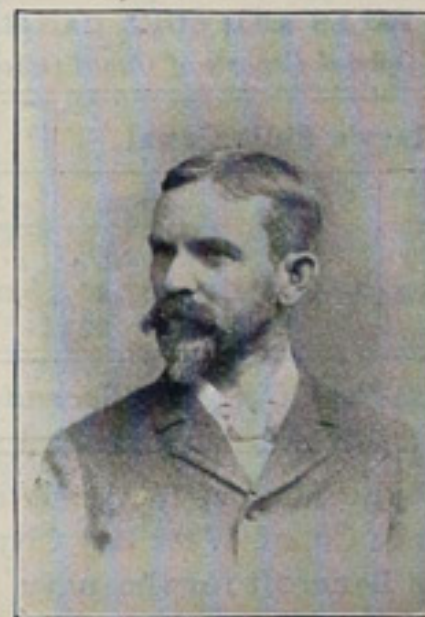
W. LIVINGSTON, President,

CHAS. H. KEEP, Secretary,

GEO. P. MCKAY, Chairman

Committee on Aids to Navigation.

BUFFALO, N. Y., October 14, 1895.



WILLIAM COWLES, DESIGNING ENGINEER WITH GLOBE IRON WORKS CO.

Transfers of Vessel Property.

The steamer Pratt and consort Ash, for which Capt. William S. Mack and others of Cleveland are said to have paid \$135,000 or \$140,000, a few days ago, were offered at the annual meeting of the Lake Carriers' Association in Detroit in January last at \$100,000. Later on when indications of a good business for the present season were brighter, \$110,000 was asked for these vessels. The Pratt and Ash are good wooden vessels, and these proofs of a big increase in the value of them, whatever the price paid by the Cleveland owners may have been, are fair indications of the advanced value of vessel property of all kinds.

Prices at which controlling interests in the steamer Thomas Davidson, Walter Vail and Baltic were sold a few days ago, place the value of these vessels at \$81,000 for the Davidson, \$51,000 for the Vail and \$34,000 for the Baltic. H. W. Cook of Michigan City, Ind., is now managing owner of this tow.

N. S. Whipple of Detroit has purchased the steamer Egyptian from the Winslow estate, Cleveland. The price reported is \$35,000.

The annual statistics of the Bureau Veritas relating to the mercantile navy of the world—seagoing vessels, but not lake or river craft of any kind—give the total number of sailing vessels now afloat measuring over 50 tons as 25,570, with an aggregate tonnage of 9,323,995 tons. Of this number Great Britain comes first with 8,793 ships of 3,333,607 tons. The United States is second with 3,824 vessels and 1,362,317 tons. Norway is third, with nearly 1,000 less vessels than the United States, but nearly the same amount of tonnage. France occupies only the eighth rank, between Sweden and Greece. In regard to the steamers, England counts 5,771 vessels with nearly 10,000,000 tons. Germany which comes second, has 826 steamers of 1,306,771 tons, France third with 501 steamers and 861,598 tons, while the United States holds fourth place with 447 steamers and 703,399 tons.



DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 516 Perry-Payne building, Cleveland, O.

SUBSCRIPTION—\$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department on June 30, 1895, contained the names of 3,342 vessels, of 1,241,459.14 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1894, was 359 and their aggregate gross tonnage 634,467.84; the number of vessels of this class owned in all other parts of the country on the same date was 316 and their tonnage 642,642.50, so that half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1895, was as follows:

Class.	Number.	Gross Tonnage.
Steam vessels.....	1,755	857,735.00
Sailing vessels.....	1,100	300,642.00
Unrigged.....	487	83,082.00
Total.....	3,342	1,241,459.00

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30,	Number.	Net Tonnage.
1891.....	204	111,856.45
" " " 1892.....	169	45,168.98
" " " 1893.....	175	99,271.24
" " " 1894.....	106	41,984.61
" " " 1895.....	93	36,353.00
Total.....	747	334,634.28

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

(From Official Reports of Canal Officers.)

	St. Mary's Falls Canal.			Suez Canal.		
	1894.	1893.	1892.	1894.	1893.	1892.
No. vessel pass'ges	14,491	12,008	12,580	3,352	3,341	3,559
T'n'ge, net registd	13,110,366	9,849,754	10,647,203	8,039,106	7,659,068	7,712,028
Days of Navigat'n	234	219	223	365	365	365

Entered at Cleveland Post Office as Second-class Mail Matter.

LAKE SHIP BUILDERS who remember the details attending the proposition of F. W. Wheeler & Co. of West Bay City, some three years ago, to build the training ship Bancroft for the navy were not surprised that Secretary Herbert finally decided not to accept the bid of the Detroit Dry Dock Co. on two of six gunboats that are to be built shortly. If the dry dock company had held to the plan of building the vessels and their machinery at Detroit and assembling the various parts at a branch yard on Puget sound, there would certainly have been some chance of the contract being secured, but this would have entailed a heavy extra expense and in the end would not settle the question of treaty relations with Great Britain interfering in the construction of vessels of war on the lakes. The Detroit company has, however, rendered the ship builders of the lakes a great service in bringing this subject so forcibly to the attention of the authorities at Washington, and the matter of disposing of this antiquated treaty stipulation should not be dropped now as it was after the effort made by F. W. Wheeler & Co. Some of the big plants on the lakes that are now being improved through activity in the building of freight carriers may be badly in need of work to hold their forces together a few years hence, and unless the managers of these establishments come together and take united action regarding this treaty they may find themselves unable to secure naval work when contracts of any kind would be welcome. As a result of this decision from Secretary Herbert, it is now thought that the contract for two of the vessels will go to the Union Iron Works of San Francisco, two more to the works at Bath, Me., and one each to Louis Nixon of Elizabeth, N. J., and Dialogue & Son of Camden, N. J.

IT IS QUITE certain that there will be a general shifting around of officers of high rank in the army engineer corps, as a result of the death of Gen. Poe and the retirement of Col. G. H. Mendall. Cleveland vessel owners are accordingly making a strong effort, through petitions and personal letters to the chief of engineers, to retain Col. Jared A. Smith in charge of the Lake Erie district which includes Cleveland and neighboring harbors. There are no further developments in the matter of Gen. Poe's successor. The vessel owners are not trying to urge the appointment of any officer in particular. It is quite probable, in fact, that neither of the two officers named by President Livingstone—Col. Ludlow and Major Adams—will receive the appointment. Col. S. M. Mansfield of

Boston seems to still have the call on the place, although it is quite probable that if for any reason Gen. Poe had been asked when alive to name his successor he would have selected Col. McKenzie. This fact may have some bearing on the appointment.

THE BOARD of Steam Navigation, an organization of coast and river vessel owners, of which Charles H. Boyer, No. 90 Wall street, New York, is secretary, is making special preparations to take up the United States libel law at the coming session of congress and endeavor to have it amended so as to protect vessel owners from its present oppressive mode of execution. The New York organization claims to have secured, during the twenty-five years in which it has been in existence, the passage of many laws favorable to shipping, among them the act of 1886, abolishing steamboat inspection fees and fees levied upon licensed officers, and also the law limiting the liability of vessel owners on inland waters. It would seem from what is known of the abuses attending the operation of the libel law on the lakes that this movement in the next congress should also have the support of the Lake Carriers' Association.

GREAT EFFORTS are being made throughout the state of New York just now to arouse public sentiment favorable to the expenditure of \$9,000,000 for improvement of the Erie and other canals of the state. A convention with this end in view is now being held in Syracuse. If the vote at the coming election in New York is not favorable to the proposed appropriation bill, the failure can hardly be charged to a forgetful or apathetic public, and the result will be a hard blow to the interests that favor a moderate enlargement of the canals. It may also be argued that the failure of this measure at the coming election would indicate that the state will spend no more money on its canals and is ready to join the general government in a radical enlargement of the Erie or the construction of some new ship-canal outlet to the seaboard.

ENGLISH SHIPPING journals may attempt to make little of the evidence of progress in ship building throughout the United States but every day brings new proof of the fear that exists across of the waters of this country soon regaining its position on the seas. After a great deal of talk of plans for naval vessels being stolen from the admiralty, and other statements equally ridiculous, the government of Great Britain has finally notified the United States navy department that hereafter no American naval cadets will be permitted to take a course at the Greenwich Royal School of Architecture. Compare this narrow policy with the freedom with which information of all kinds regarding naval architecture and marine engineering has been given out in this country!

IN the contracts for the construction of the two battle ships authorized by the last congress there are three penalties, one for delay, the second for failure to comply with the speed requirement, and the third for overweight of machinery. For the first three months' delay beyond the three years specified the contractor will be required to pay \$75 per day, excepting Sundays; for the fortieth, forty-first and forty-second months, \$150, and for the following six months, \$200. For every ton over the 1,100 tons specified as the weight of machinery the contractor will be compelled to pay \$500. In case the machinery should be 5 per cent heavier than designed to be, \$10,000 will be deducted from the contract price of the ship.

NEW DRY docks is the favorite theme just now among newspapers in the upper lake towns that are urging municipal authorities to undertake marine enterprises. Citizens of Escanaba are now talking of a new dock, but as in the case of Sault Ste. Marie, Mackinaw and other places the prospective business is not as yet sufficient to warrant private investment in this line. In a few years, however, a business sufficient to warrant the construction of a dry dock may develop at any of these places, and when that time comes it will not be necessary for the towns in question to give any great amount of aid to such enterprises.

SIX CENTS on wheat, Duluth to Buffalo, for the balance of the season has been offered during the past week to several of the largest class of steamers in the lake trade, but of course the offer has not been accepted, excepting in one or two cases, as indications favor a rising freight market until the close of the season. This means a net freight fully four times as great as what would be considered an ordinary return on the investment involved in a steel steamer. Earnings of this kind are rare, and are expected to last for only a short period, but they go a great way towards making up for poor returns and losses in bad seasons.

THE British surveying ship Penguin has recently found a deeper place in the ocean than any previously known. The sounding was taken in the Pacific ocean, off the coast of Japan. The contrivance for deep sea measuring was sunk to a depth of 4,900 fathoms, or about six miles, when the wire broke. A previous attempt to reach the bottom at the same place was followed by a similar accident after reaching a depth of 4,300 fathoms. The deepest cast obtained before this was 4,655 fathoms.

Jury Rudder Made From Old Hawser.

The packet ship Drednaught was among the famous Yankee clippers engaged in the Liverpool trade just previous to the late war. She was built in Massachusetts in 1853 and was commanded by Capt. S. Samuels, who is still well known in New York. The American Ship-builder revives a story of how this vessel, after she had lost her rudder at sea, was safely brought to port with a jury rudder made from part of a spar and numerous pieces of old hawsers. When midway of the Atlantic, while wearing ship one day, the rudder was carried away, all the gudgeons, pintals and everything except the rudder-head being torn from their fastenings. Various expedients that were resorted to failed to steer the ship, until finally one of the officers of the vessel, George H. Lord, who is now a resident of Brooklyn, N. Y., devised the rudder shown in the accompanying engraving. It is hardly necessary to go into a detailed description of the temporary rudder, as its various parts are clearly shown in the engraving. The hawser was twelve inches in diameter, cut to ten feet lengths, and these were laid alongside one another two deep. The

work of getting the rudder in position was a difficult job. It was placed on the taffrail, head forward. A rope run down through the rudder post and up over the stern was then fastened to the head of the rudder post. The upper guy was passed through the quarter chocks and the lower ones through the midship chock. Then the rudder was launched over the stern, hauling up on the rudder rope that was fast to the head and on the guyer at the same time. With this operation the rudder came up to the stern post without much trouble; the tiller was put into the fid-hole, sail was made and the ship was worked safely to a port of repair.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on Oct. 26, 1895:

	Wheat, bushels.	Corn, bushels.
Chicago.....	17,429,000	1,459,000
Duluth.....	5,279,000
Milwaukee.....	529,000
Detroit.....	506,000	30,000
Toledo.....	986,000	250,000
Buffalo.....	1,948,000	230,000
Total.....	26,677,000	1,969,000

As compared with a week ago, the above figures show at the several points named an increase of 753,000 bushels of wheat and a decrease of 1,012,000 bushels of corn.

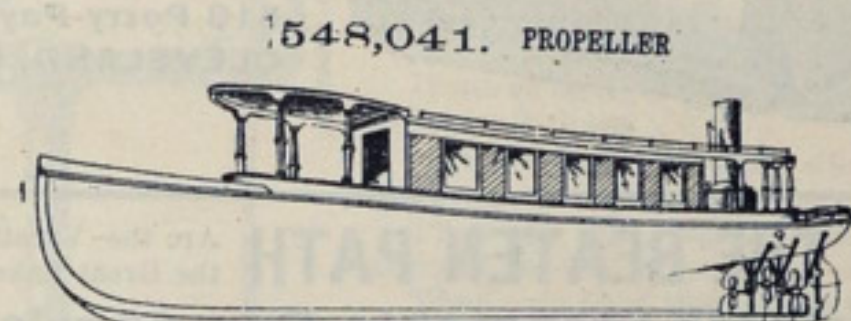
It is believed that concerns doing business on the lakes will appreciate a line of first-class marine calendars, with views of some of the handsomest lake steamers, engraved in an artistic way, more than some imaginary view or picture that has nothing to do with marine affairs. The MARINE REVIEW, has made preparations to publish a line of such calendars. Last year we published the handsomest marine calendars put out by any lake business house. If you are thinking of doing some advertising in this line for 1896, write us, giving the number of calendars wanted, what illustration or steamer or vessel picture you desire, and we will send you samples. The correspondence will be simplified if you will state the amount you would appropriate for this purpose. We can reproduce in colors any marine scene that is desired. Write the MARINE REVIEW, 516 Perry-Payne Bldg., Cleveland, O.

Illustrated Patent Record.

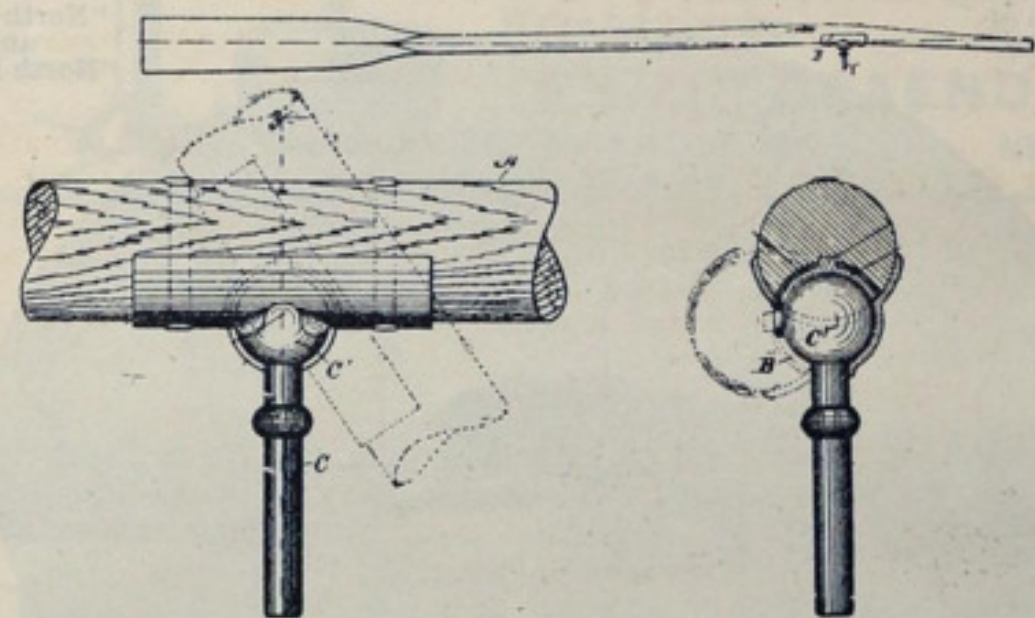
SELECTED ABSTRACTS OF SPECIFICATIONS OF A MARINE NATURE—FROM LATEST PATENT OFFICE REPORTS.

548,041. Propeller. Jacob Culin, Philadelphia, Pa. Filed Mar. 12, 1895. Serial No. 541,391.

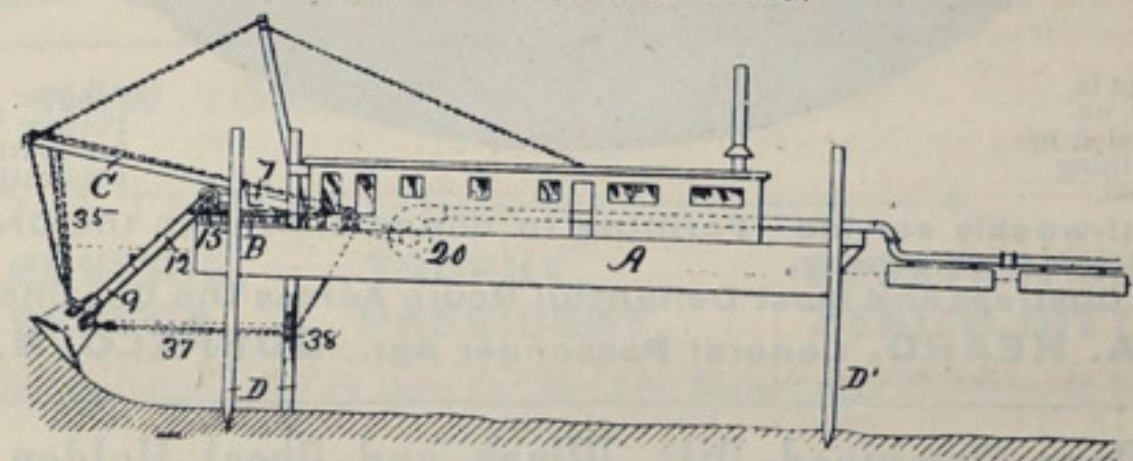
Claim. In a device of the character described, the shafts 1, 5 and 12 adapted to be rotated by a common power, in combination with sliding boxes in which the shaft 5 is journaled, vertical rods 16 secured to said box, gear wheels which receive the upper ends of the rods, a pinion to drive the gear wheels, ratchet and pawl for retaining the pinion against rotation in one direction and means for conveying oil from the vessel to the bearings in said boxes 6.



548,186. OAR AND OAR-LOCK.



548,242. DREDGING-MACHINE.



548,186. Oar and Oar-Lock. John Forbes, Plainwell, Mich., assignor of one-half to James B. Smith, Van Wert, Ohio. Filed Apr. 19, 1895. Serial No. 546,355.

Claim. The combination of the oar, A; the socket plate D, inserted into the under side of the same with a suitable projection, D', thereon to hold it in place; an elastic cushion E, between said socket piece, D, and the oar; a post, C, with a ball, C', at the top thereof; and a plate, B, on the under side of said oar, with a socket portion B', formed in the under side thereof containing an elongated opening extending in the direction of the oar and branched to one side at the center to permit of turning the oar a quarter over to permit a proper feathering of the oar, all co-acting together.

548,242. Dredging Machine. Geo. W. Wood and Hugh B. Alexander, Chicago, Ill. Filed Nov. 24, 1894. Serial No. 529,873.

Claim. In a dredging-machine, the combination with a suction-pipe, provided with a pivotal joint and a telescopic extension, of frame-timbers, having a pivotal bearing at one end thereof, the endwise moving bars, supporting said pipe extension, a scoop, secured to the outer ends of said bars, and means for imparting an up-and-down rocking movement to the outer end of the suction-pipe and supporting-frame.

TO SHIP BUILDERS.—Office of Light-House Board, Washington, D. C., October 19, 1895. Sealed proposals will be received at this office until 2 o'clock p. m. on Friday, the 8th day of November, 1895, for furnishing the materials and labor of all kinds necessary for the construction and delivery of one first-class composite Light-Vessel No. 67 for a fixed sum for said vessel delivered. Forms of proposals, plans and specifications, showing what is required, can be had or seen by applying to this office. The right is reserved to reject any or all bids, and to waive any defects. JOHN G. WALKER, Rear-Admiral, U. S. N., Chairman.



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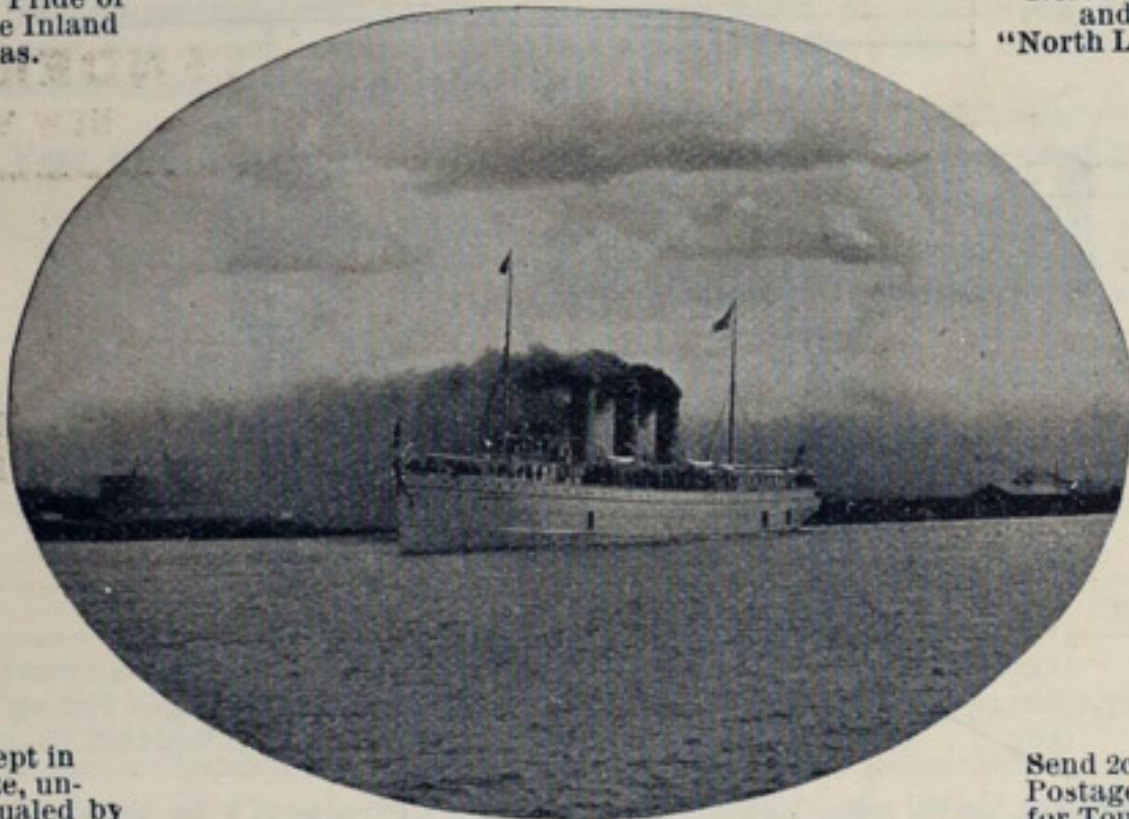
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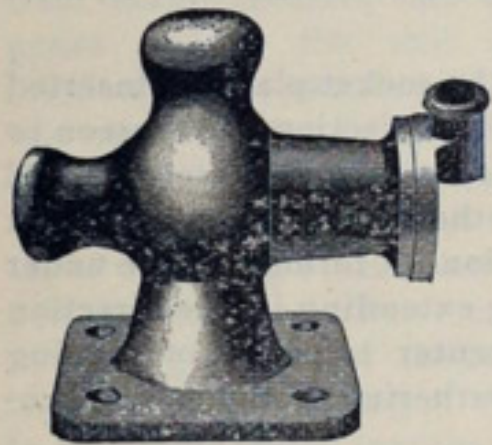
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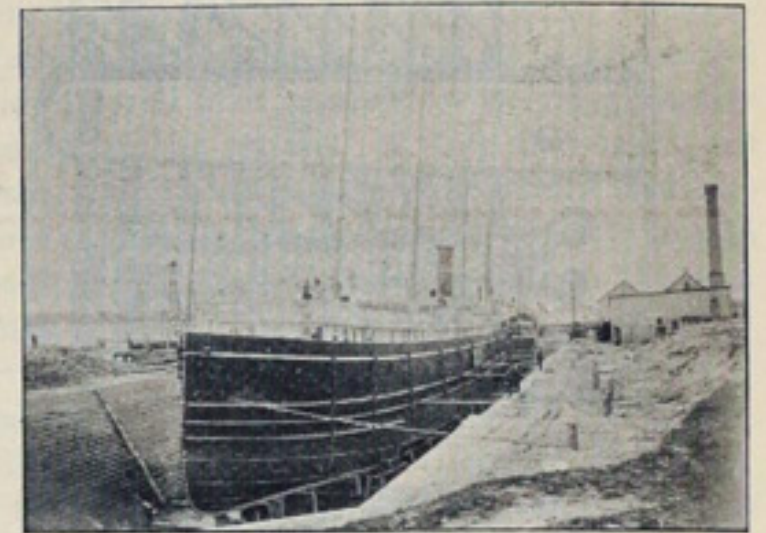
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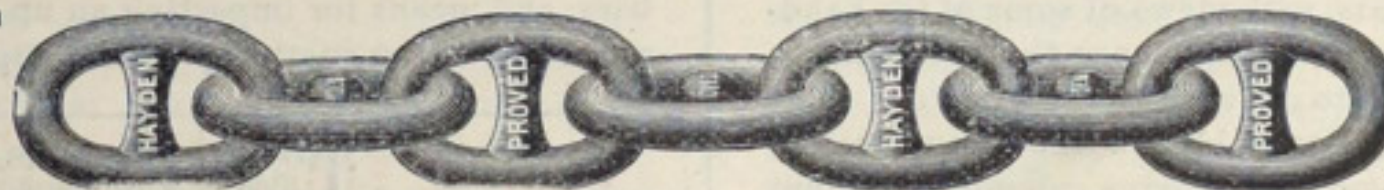
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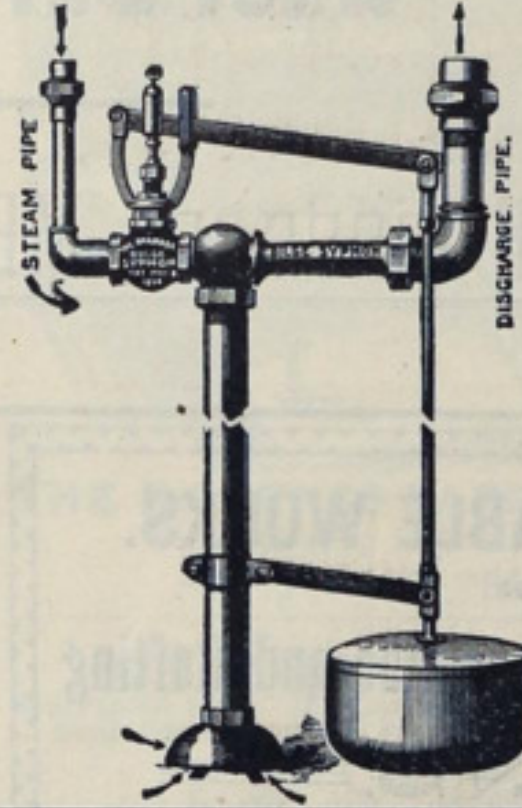


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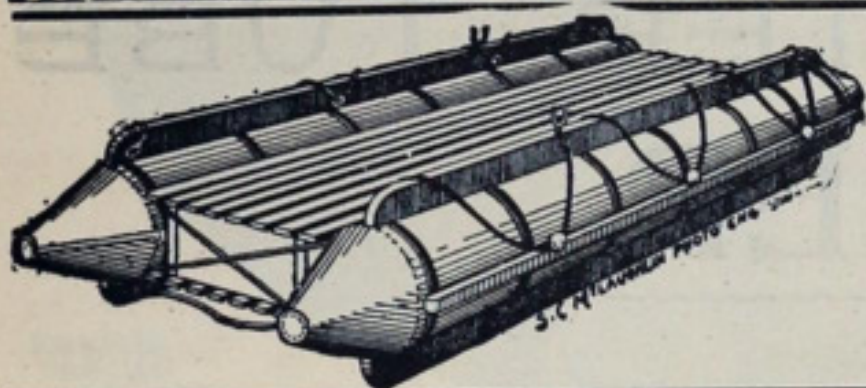
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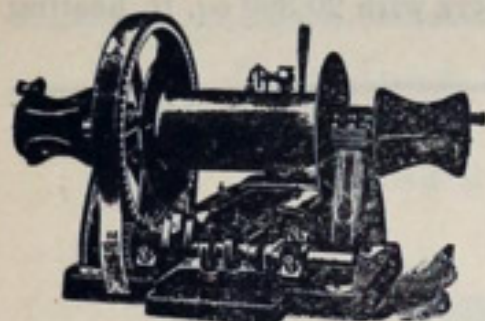
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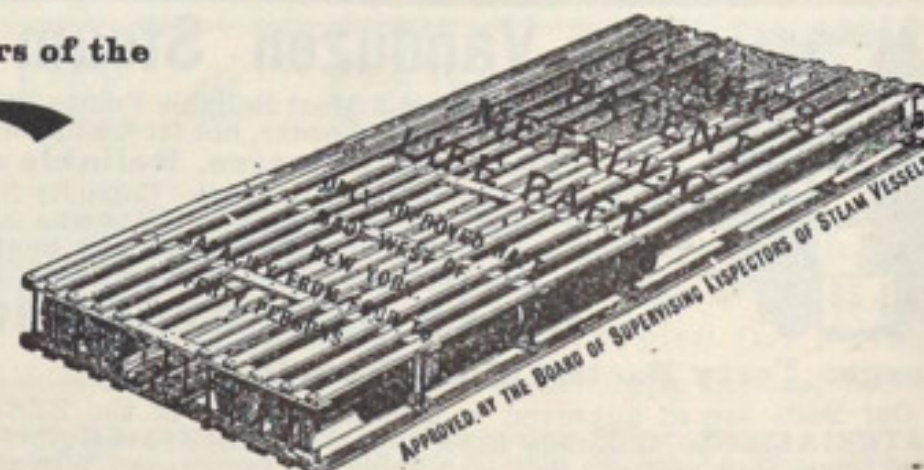
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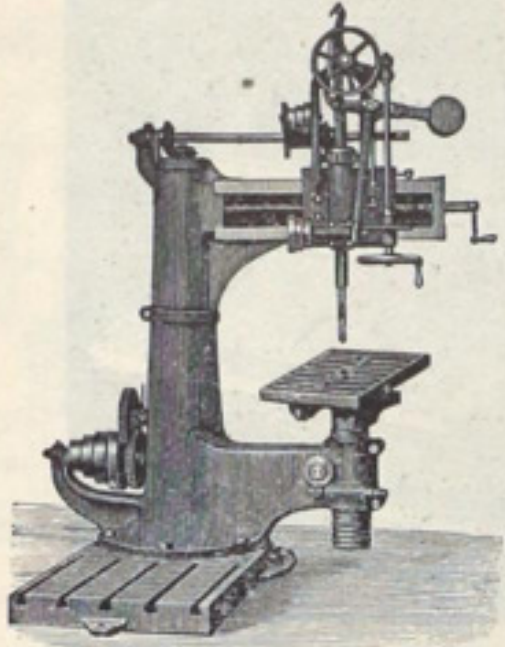
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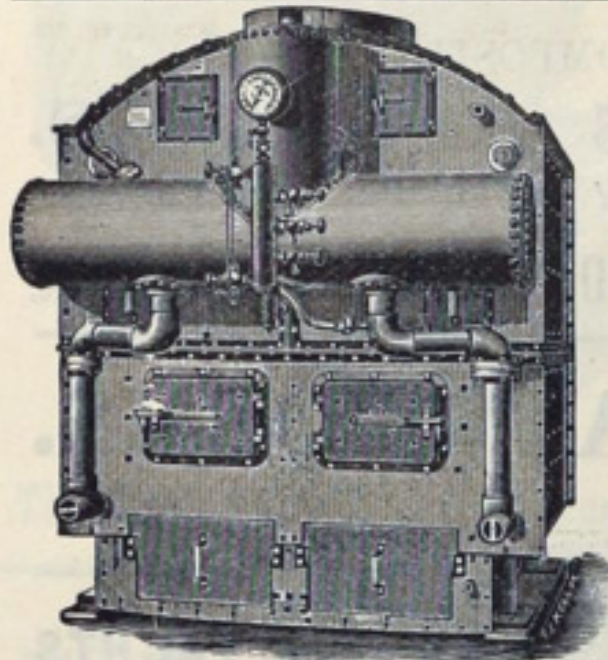
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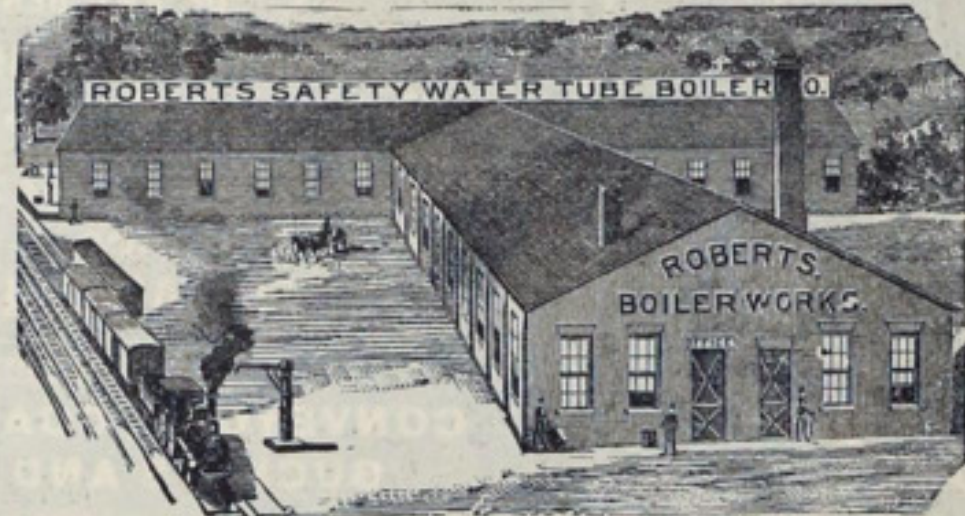
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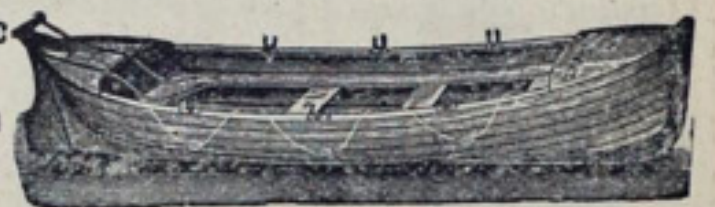


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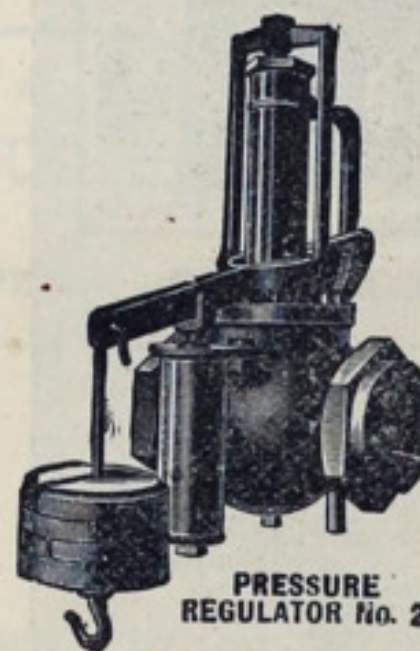
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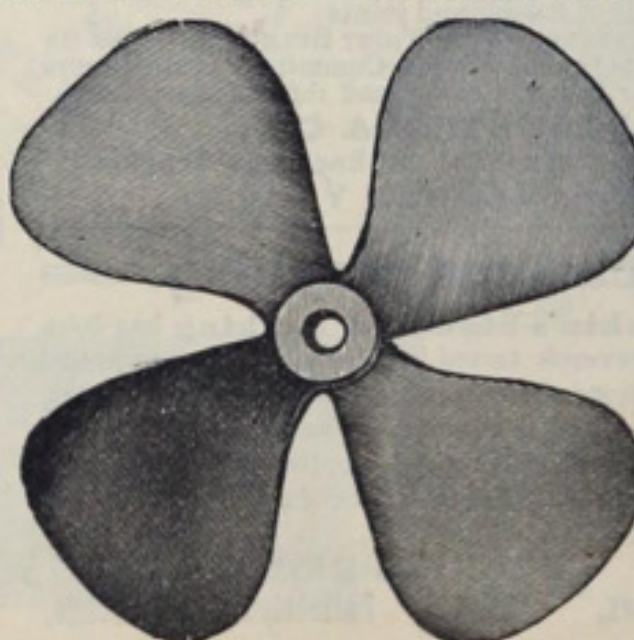
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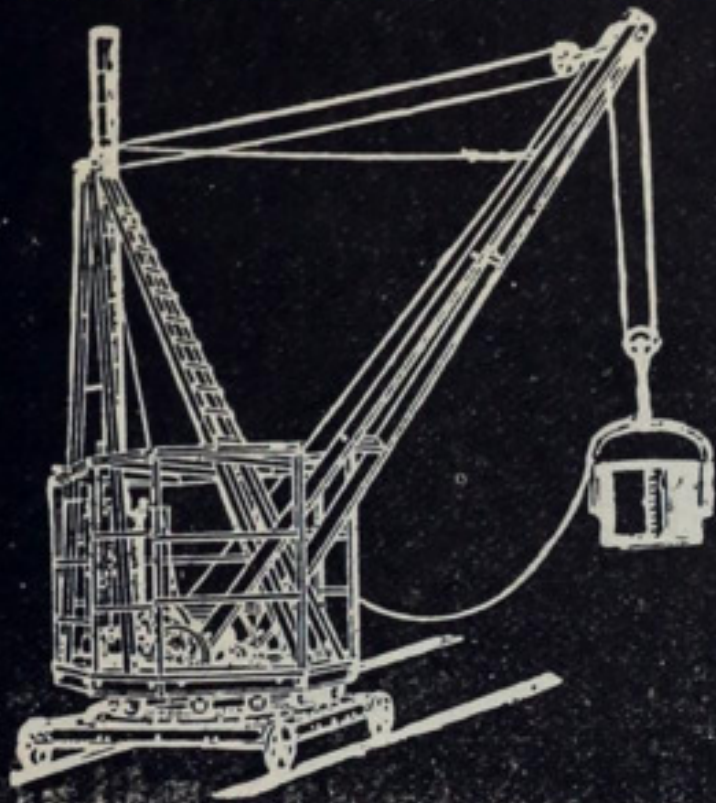
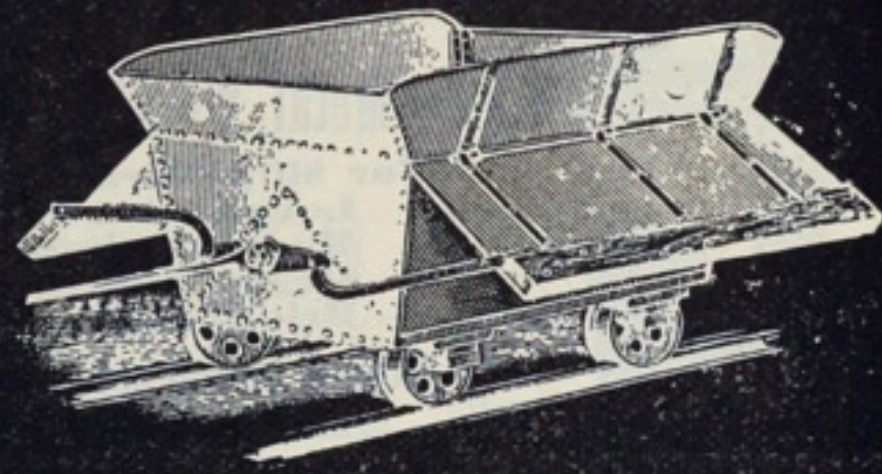
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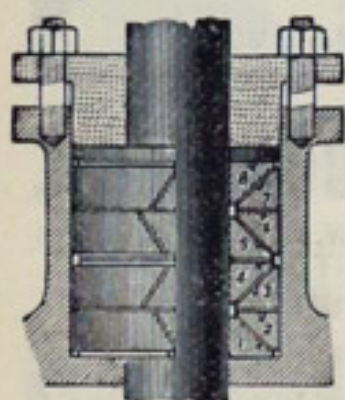
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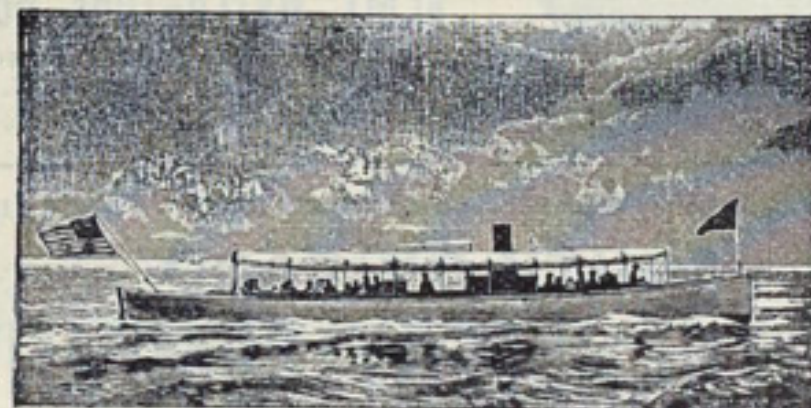
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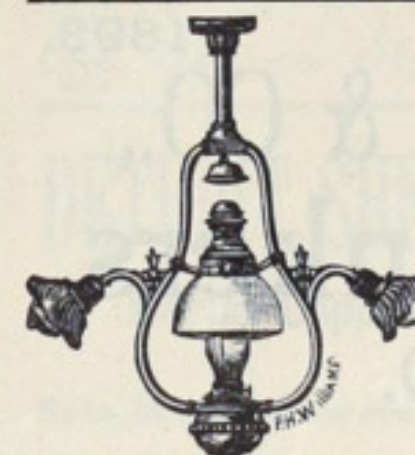
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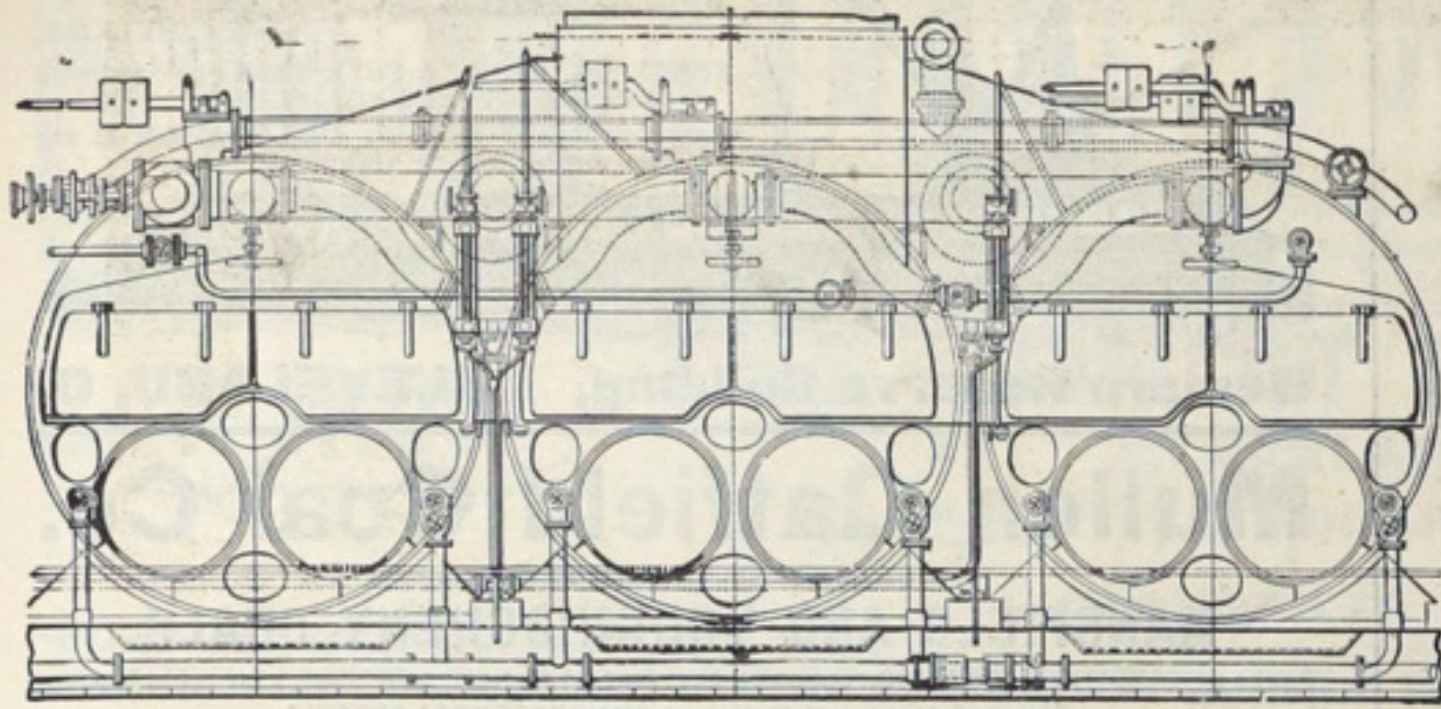
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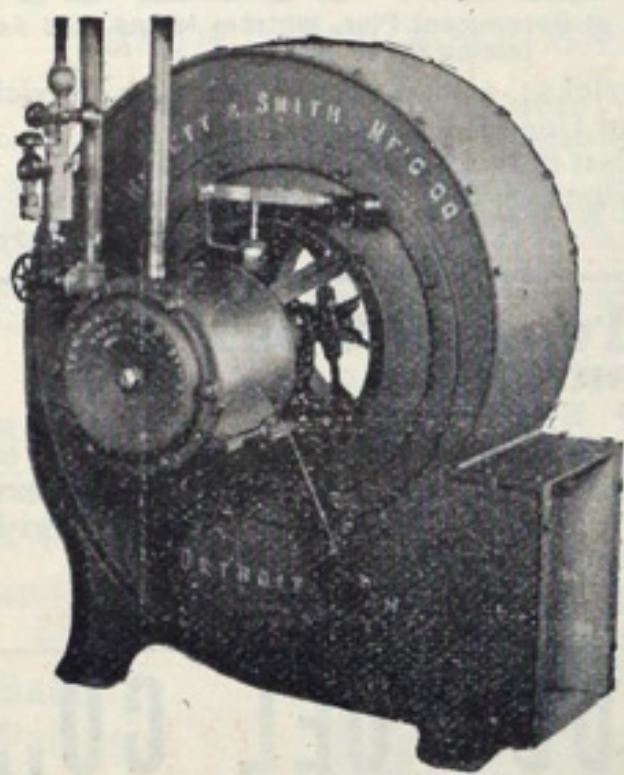
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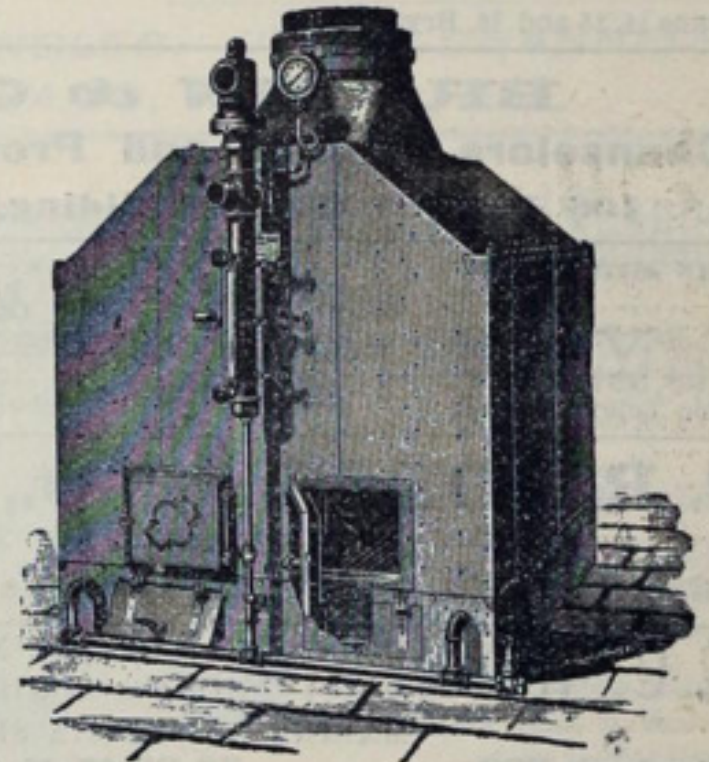
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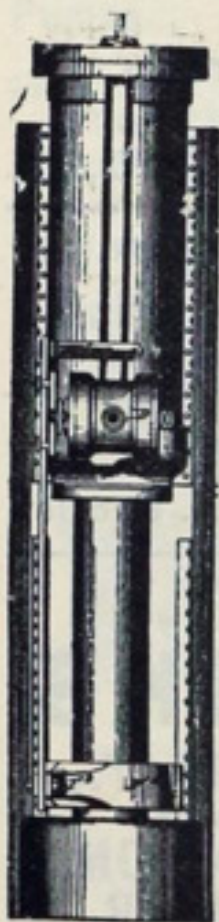
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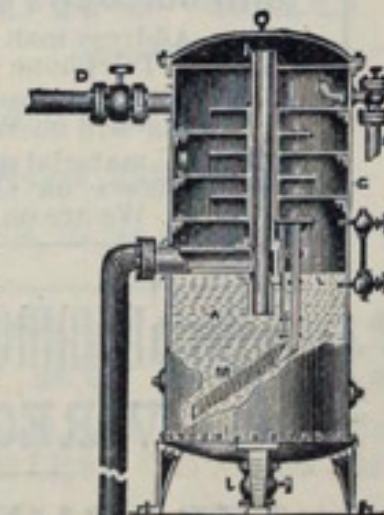
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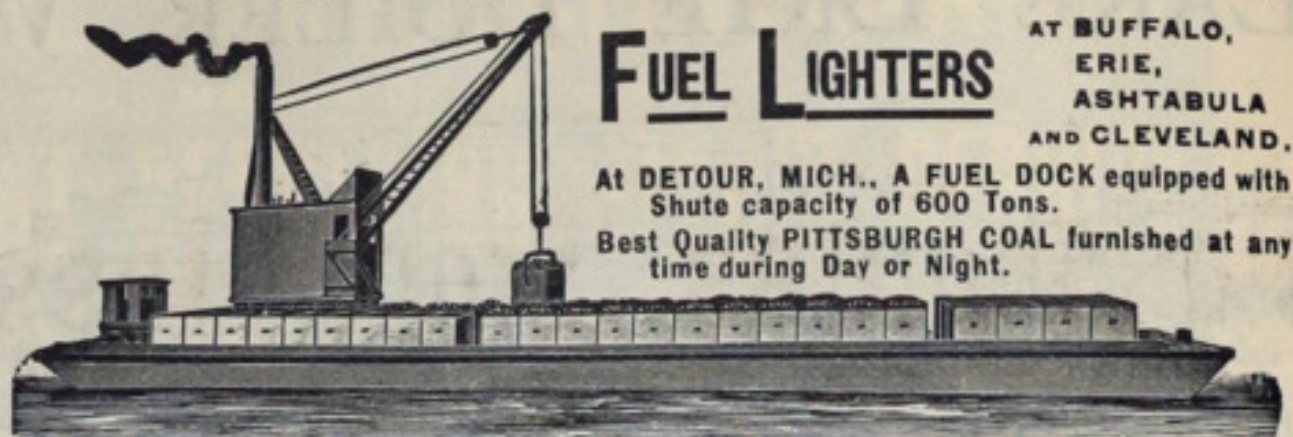
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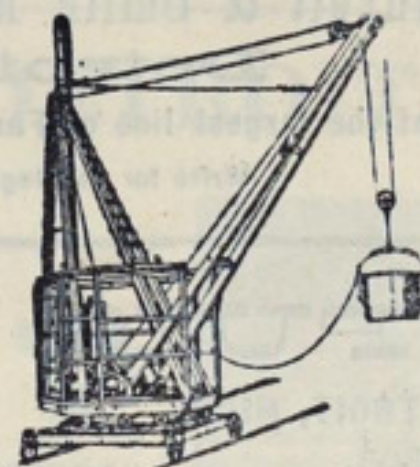
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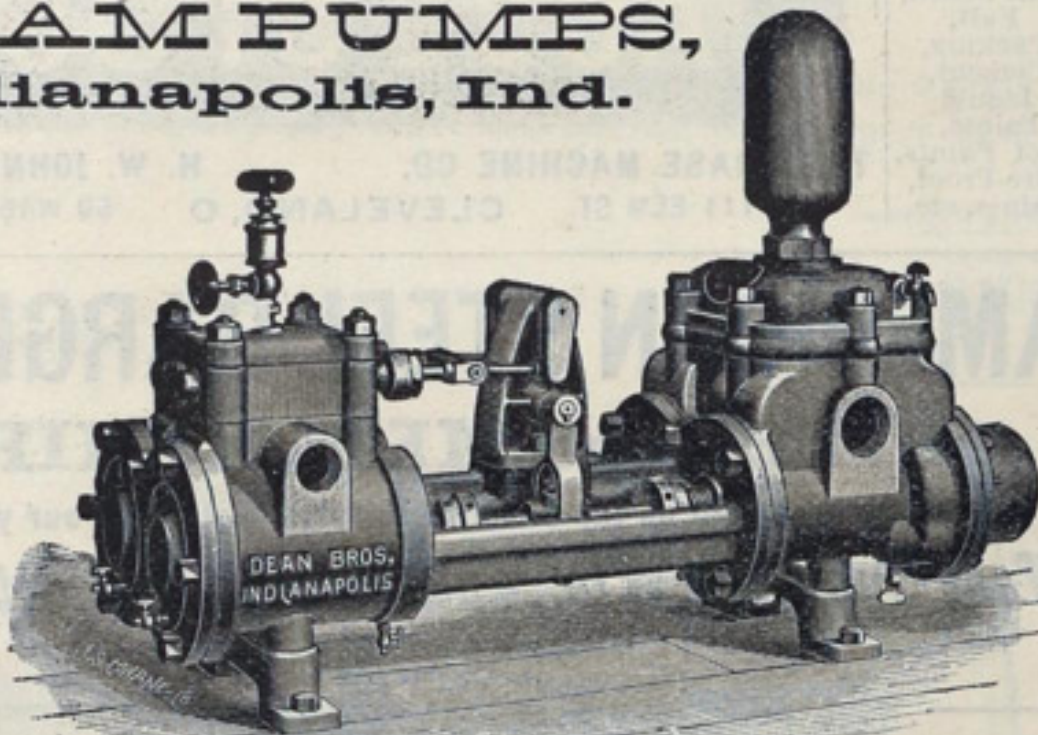
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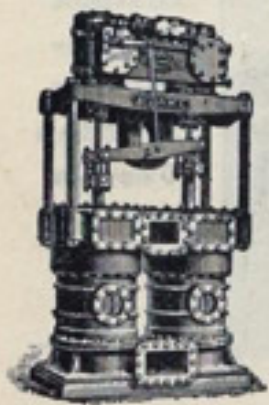
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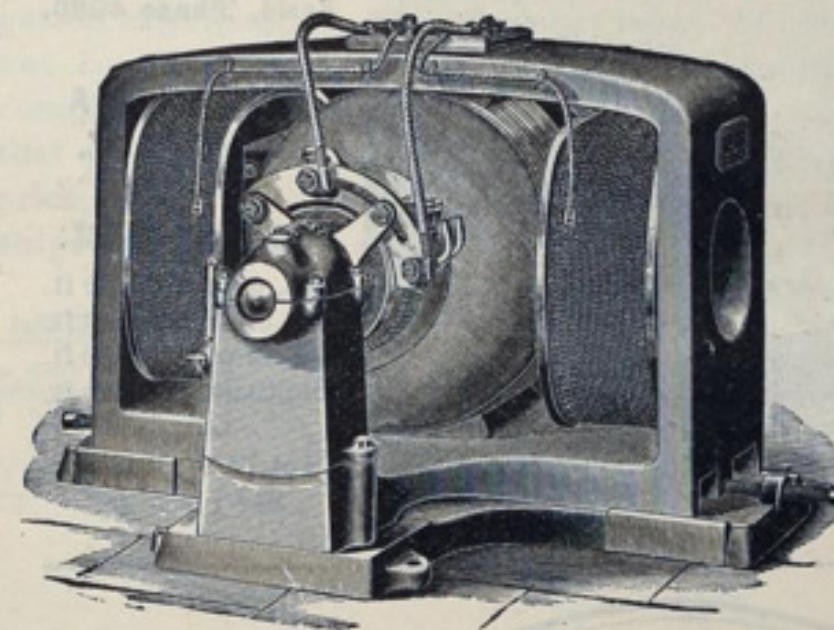


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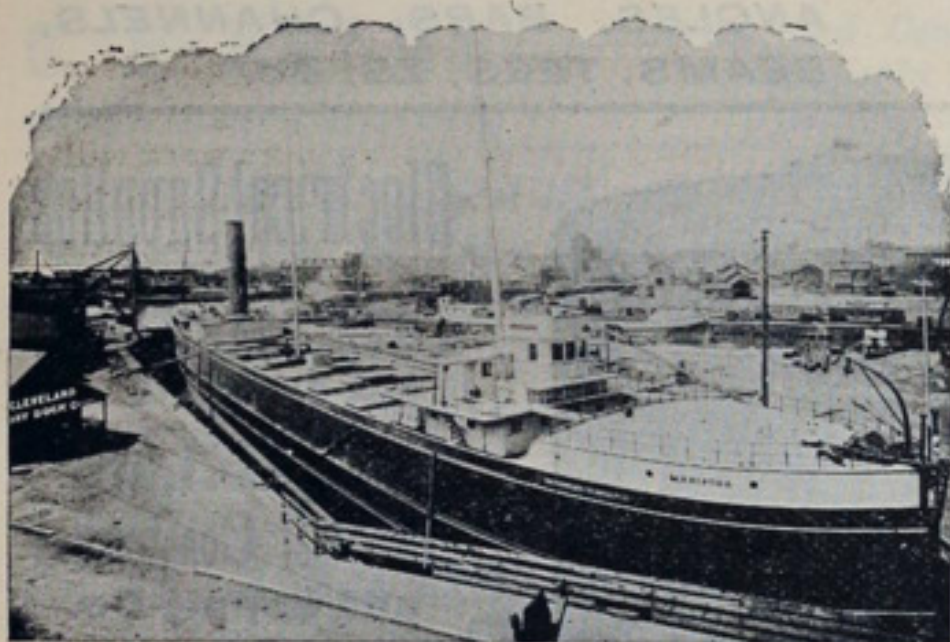
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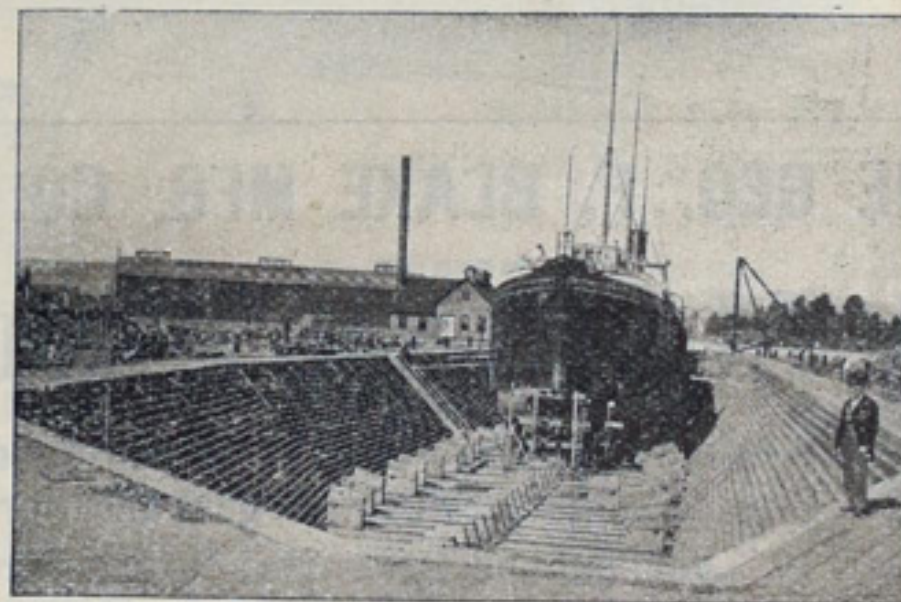
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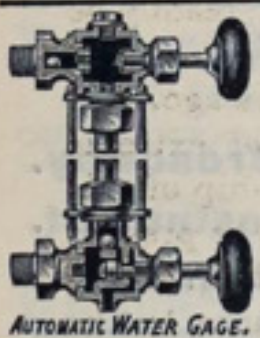
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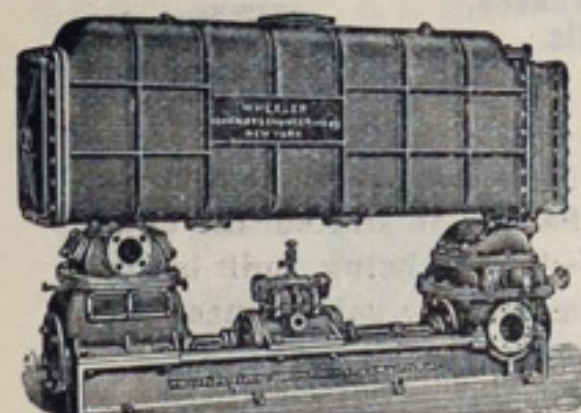
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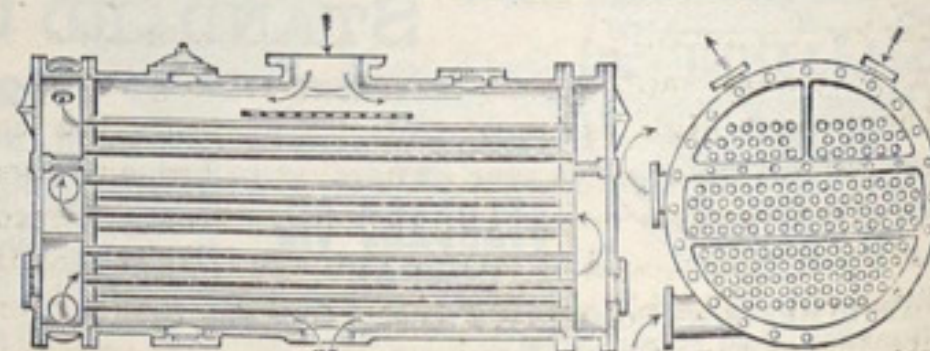
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